

10/684,285

RemarksA. Period For Reply

A shortened statutory period was set to expire three months from the Office Action of May 18, 2005. May 18, 2005 plus three months is August 18, 2005. August 18, 2005 plus two months is October 18, 2005. This paper is being filed on or before October 18, 2005 with a petition for an extension of time of two months.

B. Status

The Office Action was final.

C. Disposition Of Claims

Claims 4-7 are pending.

D. Application Papers

As to drawings, there are no drawings in this case.

E. Priority under 35 U.S.C. §§ 119 and 120

Acknowledgment of the claim for foreign priority and of the receipt of the priority document were made in the Office Action dated July 1, 2004. This is appreciated.

As to domestic priority, this case does not claim domestic priority.

F. Attachments

Applicants filed one PTO-1449 form in this application, with the filing of this case on October 13, 2003. The PTO-1449 form has been initialed and signed by the Patent Office and returned with the Office Action of July 1, 2004. This is very much appreciated.

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G. Basis for amendments (if any) to the claims and basis for new claims (if any)

No new claims have been added.

H. The Office Action

As to the Office Action of May 18, 2005, please see the Amendment and Remarks of June 28, 2005, which is hereby incorporated by reference into this paper.

As to the Advisory Action of August 5, 2005, the withdrawal of the rejection of claim 7 under section 112, second paragraph, is appreciated. The rejection of claims 4-6 under section 103 is respectfully traversed.

As to the Examiner Interview of August 18, 2005, please see the Statement of Substance of Interview dated September 18, 2005.

As to the Examiner Interview of October 11, 2005, please see the Statement of Substance of Interview set forth immediately below.

I. Statement of Substance of Interview of October 11, 2005

This is a Statement of Substance of Interview for the telephone interview of October 11, 2005 between Examiner Puttlitz and the undersigned. No exhibit was shown. No demonstration was conducted. Claim 4 was discussed. The Kawajiri et al. reference was discussed.

More specifically, the undersigned said that the purpose of the interview was to discuss the four issues of applicant noted in applicant's "Respective Request for Second Interview" dated September 12, 2005. The undersigned then briefly pointed out claim 4 and the last limitation in claim 4 as to "wherein the liquid binder is an aqueous

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liquid of 7.0 to 10.0 in pH." Then the undersigned briefly reviewed the four issues, with particular emphasis on the first two issues. As to the first issue, the undersigned argued that the water disclosed was not tap water or sea water but must be an industrial or lab type of water (such as distilled water) because that is what Kawajiri et al. discloses elsewhere in the specification. As to the second issue, the undersigned argued the [H+] concentration.

No agreement was reached. However, the Examiner invited applicant to submit an Amendment After Final making formal the four issues of the "Respective Request for Second Interview" dated September 12, 2005. This is such Amendment After Final and the four issues are argued below.

J. Applicant's discussion

First issue

A first issue relates to the disclosure of "water" in column 3, line 53, of the Kawajiri et al. reference. Applicant contends that such a disclosure is merely a general disclosure and cannot teach a pH of 7.0 or a range of pH of 7.0 to 10.0. Also, the disclosure of "water" in column 3, line 53, must be read in the context of its prior art reference as a whole and, when such a contextual reading is done, it can be seen that the prior art reference, Kawajiri et al., must relate to distilled water.

Second issue

A second issue is that it is believed that the Examiner contends that the claimed pH range (7.0 to 10.0) is near the pH of pure water. This is respectfully traversed on the basis below:

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- $\text{pH} = -\log[\text{H}^+]$. $[\text{H}^+]$ means a concentration of hydrogen ion in an aqueous solution.
- When the pH is 5.7, then the $[\text{H}^+]$ is $10^{-5.7} \approx 2.0 \times 10^{-6}$ (mol/L).
- When the pH is 7.0, then the $[\text{H}^+]$ is $10^{-7} = 1.0 \times 10^{-7}$ (mol/L).
- The $[\text{H}^+]$ of pure water is 20 times that of the lower limit of the claimed range. If one pays attention to the pH value, it may appear that the difference is just a little. However, if we pay attention to the $[\text{H}^+]$, it is clear that the difference is unexpectedly large.

Third issue

A third issue relates to how much CO_2 provides how much of a difference in pH. As to such, please see Exhibit A (four pages, attached) showing Table 5.39 that shows the relation between the amount of CO_2 absorbed in water and the pH. While Table 5.39 does not relate the pH of 5.7 to an absorbed amount of CO_2 , it is respectfully submitted that the amount of absorbed CO_2 (2.2 mg per liter) to attain the pH of 5.41 is relatively small. Therefore, it should be clear that pure water, when exposed to the atmosphere, requires less than the relatively small amount of 2.2 mg per liter for the pH of pure water to reach a pH of 5.7.

Fourth issue

A fourth issue is the definition of the term "pure water." "Pure water" is a generic term, it is respectfully submitted, for water from which impurities have been removed as much as possible. The main methods for obtaining pure water are distillation and ion-exchange. The reason that applicant points this out is to minimize any issues relating

(18450.DOC) (Amendment and Remarks--page 7 of 8)

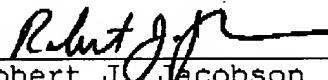
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to distillation specifically or ion-exchange specifically. In this case, the means as to how the pure water was obtained is not important. What is important is that pure water, obtained by any means, will reach a pH of 5.7 after being exposed to the atmosphere.

J. Summary

Applicant respectfully submits that the present application is in condition for allowance. The Examiner is respectfully invited to make contact with the undersigned by telephone if such would advance prosecution of this case.

Date: 10-18-05


Robert J. Jacobson
Reg. No. 32,419

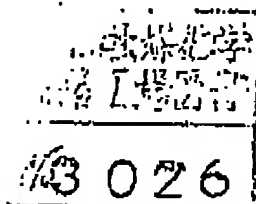
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Exhibit A 1/4

用水廃水便覧

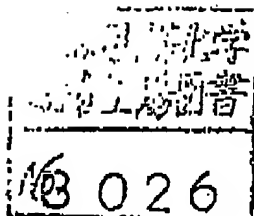
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Exhibit A 2/4



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Exhibit A 3/4

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VI. 産業用水の管理

表 5.39 23° における炭酸ガス含量と蒸留水の pH の関係⁽¹⁴⁾

| CO ₂ (mg/l) | pH | CO ₂ (mg/l) | pH |
|------------------------|------|------------------------|------|
| 590 | 4.16 | 4.4 | 5.28 |
| 975 | 4.31 | 3.6 | 5.31 |
| 178 | 4.36 | 3.0 | 5.34 |
| 90 | 4.61 | 2.8 | 5.35 |
| 55 | 4.71 | 2.6 | 5.37 |
| 24 | 4.89 | 2.4 | 5.39 |
| 18 | 4.89 | 2.2 | 5.41 |
| 9 | 5.10 | 0 | 7.00 |
| 6.1 | 5.19 | | |

によっては安定性に影響を与えるもので、たとえば、パルビツール酸塩の溶液は炭酸ガスによって沈殿を生ずる。そこで炭酸ガスの除去が問題となるが、これも酸液と同様に加熱によって除去することができる。しかし再び空気中から吸収してしまうおそれがある。Büttikofer⁽¹⁴⁾ は、炭酸ガスの除去には、100~1000 ml

について 3~10 分間煮沸することをすすめている。Münzel は 1 l につき 10 分間の煮沸をすすめている。煮沸した蒸留水の pH は約 6.8 であるが、その後の空気中からの吸収を防ぐためには、窒素を導入しながら冷却するか、容器をソーダ灰の入った乾燥管で遮断しなければならないと記している。

上記の加熱の効果は表 5.40⁽¹⁴⁾ に示すとおりである。ただし、これは直接に炭酸ガスの含有量を測定したのではなく、pH 値から炭酸ガスの量を推測したものである。これによれば、120°, 20 分煮沸した直後のものが pH が高く、炭酸ガスの除去に効果のあることが理解できる。これは Greppin が Elektrodest により採取した蒸留水についての測定結果である。

これら蒸留水中のガスを除く方法として現在行なわれている方法は次のとおりである。1つは、前記の蒸留水の一定時間の煮沸である。他の1つは、窒素、アルゴンのような不活性ガスを液中に送り込んで置換する方法である。しかし蒸留器によっては、炭酸分離装置を備えるものもある⁽¹⁴⁾。

表 5.40 CO₂ と pH⁽¹⁴⁾

| 水 | 日 | 時 | 分 | dithizone | pH | 炭酸量 (CO ₂ , 10 ⁻⁴) | 比炭酸 (%) |
|------------------------|-----|---|---|-----------|------|--|------------|
| Elektrodest 蒸留水 | 1 | — | — | — | 6.35 | 9.35 | 299 212 |
| 10mm 20 ガラスのフラスコに採取、冷却 | 7 | — | — | — | 5.41 | 2.09 | 478 488 |
| | 30 | — | — | — | 5.72 | 2.63 | 353 356 |
| | 300 | — | — | — | 6.32 | 23.9 | 38 387 |
| 120° 20 分高温蒸留 | 1 | — | — | — | 6.0 | 2.23 | 444 444 |
| | 7 | — | — | — | 5.62 | 2.88 | 380 224 |
| | 30 | — | — | — | 5.65 | 2.99 | 386 100 |
| | 300 | — | — | — | 6.11 | 5.67 | 176 400 |
| 30 分煮沸、陰に冷却 | 1 | — | — | — | 5.72 | 2.18 | 458 488 |
| | 7 | — | — | — | 5.73 | 2.45 | 408 504 |
| | 30 | — | — | — | 5.65 | 3.8 | 263 158 |
| | 300 | — | — | — | 6.44 | 19.2 | 51 975 |
| 30 分煮沸、点滅に冷却 | 1 | — | — | — | 5.73 | 1.18 | 834 750 |
| 蒸留を止めて、冷却した水で | 1 | — | — | — | 5.47 | 4.69 | 204 498 |
| 数分間冷却した蒸留水 | 7 | — | — | — | 5.8 | 2.47 | 404 858 |
| | 30 | — | — | — | 5.44 | 3.47 | 285 184 |
| | 300 | — | — | — | 6.4 | 19.2 | 51 975 |

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Exhibit A 4/4

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Partial translation of Document 1
"Service water and Wastewater Handbook"

Page 1092, Table 5.39

Table 5.39 "The relation of the amount of carbon dioxide content and the pH of distilled water at 23 °C"

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